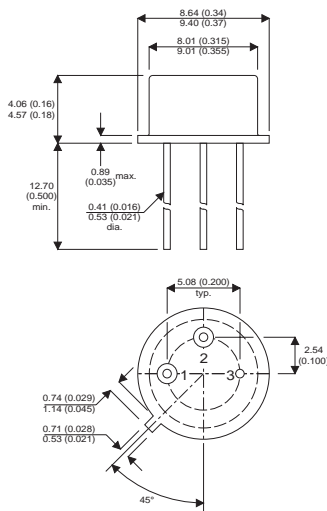


MECHANICAL DATA

Dimensions in mm (inches)



TO-39 METAL PACKAGE (TO-205AF)

Underside View

Pin 1 = Source Pin 2 = Gate Pin 3 = Drain

**P-CHANNEL
POWER MOSFETs**

V_{DSS} - 100V
 $I_{D(cont)}$ - 6.5A
 $R_{DS(on)}$ 0.30Ω

FEATURES


- Single pulse avalanche energy rated
- SOA is power dissipation limited
- Nanosecond switching speeds
- Linear transfer characteristics
- High input impedance

ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^{\circ}C$ unless otherwise stated)

V_{GS}	Gate – Source Voltage*	±20V
V_{DS}	Drain – Source Voltage*	-100V
V_{DG}	Drain – Gate Voltage ($R_{GS} = 20k\Omega$)*	-100V
I_D	Continuous Drain Current @ $T_{Case} = 25^{\circ}C$ *	-6.5A
	@ $T_{Case} = 100^{\circ}C$ *	-4.1A
I_{DM}	Pulsed Drain Current ² *	-25A
E_{AS}	Single Pulse Avalanche Current ³	500mJ
P_D	Power Dissipation @ $T_{Case} = 25^{\circ}C$ *	25W
	Linear Derating Factor*	0.2W/°C
T_J, T_{STG}	Operating and Storage Junction Temperature Range*	-55 to +150°C
$R_{\theta JC}$	Thermal Resistance Junction to Case*	5°C/W
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	175°C/W

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ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
STATIC ELECTRICAL RATINGS					
BV_{DSS} Drain – Source Breakdown Voltage*	$V_{GS} = 0$ $I_D = -1mA$	-100			V
$R_{DS(on)}$ Static Drain – Source On–State Resistance ¹	$V_{GS} = -10V$ $I_D = -4.1A$			0.30*	Ω
$V_{GS(th)}$ Gate Threshold Voltage*	$V_{DS} = V_{GS}$ $I_D = -0.25mA$	-2		-4	V
I_{GSS} Forward Gate – Source Leakage	$V_{GS} = -20V$			-100	nA
I_{GSS} Reverse Gate – Source Leakage	$V_{GS} = 20V$			100	
I_{DSS} Zero Gate Voltage Drain Current*	$V_{DS} = \text{Max rating} \times 0.8$ $V_{GS} = 0V$ $T_C = -125^{\circ}C$			-25 -250	μA
$V_{DS(on)}$ On-State Drain Voltage ¹	$V_{DS} \geq I_{D(on)}R_{DS(on)max.}$ $V_{GS} = -10V$ $I_D = -6.5A$			-2.1	V
g_{fs} Forward Transconductance ¹	$V_{DS} = -5V$ $I_D = -4.1A$	2.5	3.5	7.5	S($\bar{\Omega}$)
C_{iss} Input Capacitance	$V_{GS} = 0V$ $V_{DS} = -25V$ $f = 1.0\text{ MHz}$		800		pF
C_{oss} Output Capacitance			300		
C_{riss} Reverse Transfer Capacitance			125		
Q_g Total Gate Charge	$V_{GS} = -15V$ $I_D = -15A$ $V_{DS} = 0.8 \times \text{Max Rating}$		25	45	nC
Q_{gs} Gate – Source Charge			13	23	
Q_{gd} Gate – Drain (“Miller”) Charge			12	22	
$t_{d(on)}$ Turn–On Delay Time	$V_{DD} = -42V$ $I_D = -4.1A$ $Z_o = 50\Omega$		30	60	ns
t_r Rise Time			70	140	
$t_{d(off)}$ Turn–Off Delay Time			70	140	
t_f Fall Time			70	140	
SOURCE – DRAIN DIODE CHARACTERISTICS					
I_S Continuous Source Current*	Modified MOSFET Symbol showing the integral reverse P-N Junction rectifier.			-6.5	A
I_{SM} Pulse Source Current [(Body Diode) ²]				-25	
V_{SD} Diode Forward Voltage ¹	$V_{GS} = 0$ $I_S = -6.5A$ $T_J = 25^{\circ}C$			-4.7	V
t_{rr} Reverse Recovery Time	$I_F = -6.5A$ $V_{DD} \leq -50V$			250	ns
Q_{rr} Reverse Recovery Charge	$di_F/dt = 100\text{ A}/\mu s$ $T_J = 25^{\circ}C$		3.0		μC
t_{on} Forward Turn–On Time			negligible		—

*JEDEC Registered Value

1 Pulse Test: Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$

2 Repetitive Rating: Pulse width limited by max. junction temperature

3 $V_{DD} = 25V$ starting $T_J = 25^{\circ}C$, $L = 17.25mH$, $R_G = 25\Omega$, Peak $I_L = 6.5A$

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